

Express Mail No.: EL 451 598 986 US

# 37  
gnd  
**RECEIVED**

NOV 25 2002

THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: RUDDY et al.

Serial No.: 08/852,495

Filed: May 7, 1997

For: POLYMORPHISMS IN THE REGION  
OF THE HUMAN HEMOCHROMATOSIS  
GENE

Confirmation No.:

Group Art Unit: 1644

Examiner: DECLOUX, A.

Attorney Docket No.: 8907-057-999

TECH CENTER 1600/2900

### INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
Washington, D.C. 20231

Sir:

In accordance with the duty of disclosure provisions of 37 C.F.R. §1.56, there is hereby provided certain information which the Examiner may consider material to the examination of the subject U.S. patent application. It is requested that the Examiner make this information of record if it is deemed material to the examination of the application.

1. Enclosures accompanying this Information Disclosure Statement are:

- 1a. ☒ A list of all patents, publications, applications, or other information submitted for consideration by the office.
- 1b. A legible copy of :
  - ☒ Each U.S. patent application publication and U.S. and foreign patent;
  - ☒ Each publication or that portion which caused it to be listed on the PTO-1449;
  - ☐ For each cited pending U.S. application, the application specification including the claims, and any drawing of the application, or portion of the application which caused it to be listed on the PTO-1449 including any claims directed to that portion;
  - ☐ all other information or portion which caused it to be listed on the PTO-1449.
- 1c. ☐ An English language copy of search report(s) from a counterpart foreign application or PCT International Search Report.
- 1d. ☐ Explanations of relevancy (ATTACHMENT 1(d), hereto) or English language abstracts of the non-English language publications.

2. ☒ This Information Disclosure Statement is filed under 37 C.F.R. §1.97(b):

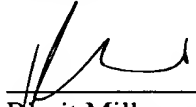
- ☐ Within three months of the filing date of a national application other than a continued prosecution application under §1.53(d);
  - ☐ Within three months of the date of entry of the national stage as set forth in §1.491 in an international application;
  - ☐ Before the mailing of the first Office action on the merits;
  - ☒ Before the mailing of a first Office action after the filing of a request for continued examination under §1.114.
3. ☐ This Information Disclosure Statement is filed under 37 C.F.R. §1.97(c) after the period specified in 37 C.F.R. §1.97(b), but before the mailing date of any of a final action under 37 C.F.R. §1.113, a notice of allowance under 37 C.F.R. §1.311 or an action that otherwise closes prosecution in the application.
- 3a. ☐ The Certification Statement in Item 5 below is applicable. Accordingly, no fee is required.
- 3b. ☐ The \$180.00 fee set forth in 37 C.F.R. §1.17(p) in accordance with 37 C.F.R. §1.97(c) is:
- ☐ enclosed
  - ☐ to be charged to Pennie & Edmonds LLP Deposit Account No. 16-1150.
4. ☐ This Information Disclosure Statement is filed under 37 C.F.R. §1.97(d) after the period specified in 37 C.F.R. §1.97(c), but on or before the date of payment of the issue fee.
- The \$180.00 fee set forth in 37 C.F.R. §1.17(p) is:
- ☐ enclosed.
  - ☐ to be charged to Pennie & Edmonds LLP Deposit Account No. 16-1150.
- The Certification Statement in Item 5 below is applicable.
5. ☐ Certification Statement (*applicable if Item 3a or Item 4 is checked*)
- 5a. ☐ In accordance with 37 C.F.R. §1.97(e)(1), it is certified that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.
- 5b. ☐ In accordance with 37 C.F.R. §1.97(e)(2), it is certified that no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the undersigned after making reasonable inquiry, was known by any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement.
6. ☐ This application is a continuation application under 37 C.F.R. §1.60 or §1.53(b) or (d).

- 6a. ☐ A Petition to Withdraw from issue under 37 C.F.R. §1.313(b)(5) is concurrently filed herewith.
- 6b. ☐ Copies of publications listed on Form PTO-1449 from prior application Serial No. \_\_, filed on \_\_, of which this application claims priority under 35 U.S.C. §120, are not being submitted pursuant to 37 C.F.R. §1.98(d).
- 6c. ☐ Copies of the publications listed on Form PTO-1449 were not previously cited in prior application Serial No. \_\_, filed on \_\_, and are provided herewith.
7. ☐ This is a Supplemental Information Disclosure Statement. (*Check either Item 7a or 7b*)
- 7a. ☐ This Supplemental Information Disclosure Statement under 37 C.F.R. §1.97(f) supplements the Information Disclosure Statement filed on \_\_\_\_\_. A bona fide attempt was made to comply with 37 C.F.R. §1.98, but inadvertent omissions were made. These omissions have been corrected herein. Accordingly, additional time is requested so that this Supplemental Information Disclosure Statement can be considered as if properly filed on \_\_\_\_\_.
8. ☐ In accordance with 37 C.F.R. §1.98, a concise explanation of what is presently understood to be the relevance of each non-English language publication is:
- 8a. ☐ satisfied because all non-English language publications were cited on the enclosed English language copy of the PCT International Search Report or the search report from a counterpart foreign application indicating the degree of relevance found by the foreign office.
- 8b. ☐ set forth in the application.
- 8c. ☐ enclosed as an attachment hereto.
9. ☒ The Commissioner is authorized to charge any additional fee required or credit any overpayment for this Information Disclosure Statement and/or Petition to Pennie & Edmonds LLP Deposit Account No. 16-1150.
10. ☒ No admission is made that the information cited in this Statement is, or is considered to be, material to patentability nor a representation that a search has been made (other than a search report of a foreign counterpart application or PCT International Search Report if submitted herewith). 37 C.F.R. §§1.97(g) and (h).

Respectfully submitted,

Date November 18, 2002

43,341

  
for: Brian M. Poissant (Reg. No. 28,462)

PENNIE & EDMONDS LLP  
1155 Avenue of Americas  
New York NY 10036-2720  
(650) 493-4935

## LIST OF REFERENCES CITED BY APPLICANT

(Use several sheets if necessary)

ATTY. DOCKET NO.

8907-057-999

APPLICATION NO.

08/852,495

APPLICANT

RUDDY et al.

FILING DATE

May 7, 1997

GROUP

1644

TECH CENTER 1600/2900

NOV 25 2002

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	AA	4,399,216	Aug. 1983	Axel et al.			
	AB	4,434,156	Feb. 1984	Trowbridge			
	AC	4,666,927	May. 1987	Hider et al.			
	AD	4,683,202	Jul. 1987	Mullis			
	AE	4,711,845	Dec. 1987	Gelfand et al.			
	AF	4,912,118	Mar. 1990	Hider et al.			
	AG	5,075,469	Dec. 1991	Chevion			
	AH	5,104,865	Apr. 1992	Hider et al.			
	AI	5,116,964	May. 1992	Capon			
	AJ	5,185,368	Feb. 1993	Peter et al.			
	AK	5,256,676	Oct. 1993	Hider et al.			
	AL	5,328,992	Jul. 1994	Peter et al.			
	AM	5,385,918	Jan. 1995	Connell et al.			
	AN	5,399,346	Mar. 1995	Anderson et al.			
	AO	5,420,008	May. 1995	Nishida et al.			
	AP	5,424,057	Jun. 1995	Peter et al.			
	AQ	6,025,130	Feb. 2000	Thomas et al.			

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
	AR	CA 2115222	Aug. 1994	CA				
	AS	CA 2115221	Aug. 1994	CA				
	AT	CA 2115224	Aug. 1994	CA				
	AU	EP 0 315 434	May. 1989	EP				
	AV	EP 0 346 281	Dec. 1989	EP			X Abstract	
	AW	DE 208 609	Apr. 1984	DE				X

EXAMINER

DATE CONSIDERED

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

TECH CENTER 1600/2900  
 Sheet 2 of 5  
 NOV 25 2002

# LIST OF REFERENCES CITED BY APPLICANT

(Use several sheets if necessary)

ATTY. DOCKET NO.

8907-057-999

APPLICATION NO.

08/852,495

APPLICANT

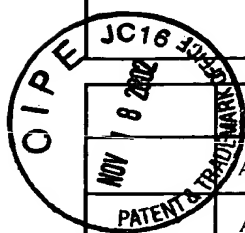
RUDDY et al.

FILING DATE

May 7, 1997

GROUP

1644



AX	DE 4 327 226	Feb. 1995	DE			X Abstract	
AY	GB 2 293 269	Mar. 1996	UK				
AZ	WO 94/01463	Jan. 1994	WO				
BA	WO 94/04186	Mar. 1994	WO			X Abstract	
BB	WO 94/11367	May. 1994	WO				
BC	WO 94/21243	Sep. 1994	WO				
BD	WO 95/16663	Jun. 1995	WO				
BE	WO 96/17870	Jun. 1996	WO				

## OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

BF	Barton, J.C., et al., "Blood Lead Concentrations in Hereditary Hemochromatosis," J. Lab. Clin. Med. (1994) 124(2):193-198 (0022-2143/94).
BG	Beutler, E., et al., "A Strategy for Cloning the Hereditary Hemochromatosis Gene," Blood Cells, Molecules, and Diseases (1995) 21(21):207-216 (1079-9796/95).
BH	Bjorkman, P.J., et al., "Structure, Function, and Diversity of Class I Major Histocompatibility Complex Molecules," Annu. Rev. Biochem. (1990) 59:253-288 (0066-4154/90).
BI	Calandro, L.M., et al., "Characterization of a Recombinant That Locates the Hereditary Hemochromatosis Gene Telomeric to HLA-F," Hum. Genet. (1995) 96:339-342 (Kaiser Foundation Research Institute).
BJ	Camaschella, C., et al., "Hereditary Hemochromatosis: Recent Advances in Molecular Genetics and Clinical Management," Haematologica (1997) 82:77-84 (BioMed).
BK	Capecchi, M.R., "Altering the Genome by Homologous Recombination," Science (1989) 244:1288-1292 (Univ. of Utah Medical Center).
BL	Cartwright, G.E., et al., "Inheritance of Hemochromatosis: Linkage to HLA," Trans. Assoc. Am. Phys. (1978) 91:273-281 (National Institutes of Health).
BM	Chen, X., et al., "Template-Directed Dye-Terminator Incorporation (TDI) Assay: A Homogeneous DNA Diagnostic Method Based on Fluorescence Resonance Energy Transfer," Nucl. Acids Res. (1997) 25(2):347-353 (U.S. Dept. of Energy).
BN	Crawford, D.H.G., et al., "Evidence That the Ancestral Haplotype in Australian Hemochromatosis Patients May be Associated With a Common Mutation in the Gene," Am. J. Hum. Genet. (1995) 57:362-367 (0002-9297/95).
BO	Crystal, R.G., "Gene Therapy Strategies for Pulmonary Disease," Am. J. Med. (1992) 92(6A):6A-44S-6A-52S (National Institutes of Health).
BP	Darnell, J., "Molecular Cell Biology," Scientific American Books (1986) pp. 227-229 (Rockefeller Univ.).

EXAMINER

DATE CONSIDERED

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

**LIST OF REFERENCES CITED BY APPLICANT**

(Use several sheets if necessary)

ATTY. DOCKET NO.

8907-057-999

APPLICATION NO.

08/852,495

APPLICANT

RUDDY et al.

FILING DATE

May 7, 1997

GROUP

1644

BQ

Dugast, I.J., et al., "Identification of Two Human Ferritin H Genes on the Short Arm of Chromosome 6," Genomics (1990) 6:204-211 (0888-7543/90).

BR

Edwards, C.Q., et al., "The Locus for Hereditary Hemochromatosis Maps Between HLA-A and HLA-B," Cytogenet. Cell Genet. (1985) 40:620 (Univ. of Utah Medical Center).

BS

El Kahloun, A., et al., "Localization of Seven New Genes Around the HLA-A Locus," Hum. Molec. Genet. (1992) 2(1):55-60 (Institut National de la Sante et de la Recherche Medicale).

BT

Friedmann, T., "Progress Toward Human Gene Therapy," Science (1989) 244:1275-1281 (San Diego Univ. of Calif.).

BU

Fullan, A., et al., "A Polymorphic Dinucleotide Repeat at the Human HLA-F Locus," Hum. Mol. Genet. (1994) 3(12):2266 (Mercator Genetics).

BV

Gasparini, P., et al., "Linkage Analysis of 6p21 Polymorphic Markers and the Hereditary Hemochromatosis: Localization of the Gene Centromeric to HLA-F," Hum. Molec. Genet. (1993) 2(5):571-576 (National Research Council).

BW

Gnirke, A., et al., "Physical Calibration of Yeast Artificial Chromosome Contig Maps by RecA-Assisted Restriction Endonuclease (RARE) Cleavage," Genomics (1994) 24:199-210 (0888-7543/94).

BX

Goei, V.L., et al., "Isolation of Novel Non-HLA Gene Fragments From the Hemochromatosis Region (6p21.3) by cDNA Hybridization Selection," Am. J. Hum. Genet. (1994) 54:244-251 (0002-9297/94).

BY

Gorski, J., "HLA-DR  $\beta$ -Chain Polymorphism: Second Domain Polymorphism Reflects Evolutionary Relatedness of Alleles and May Explain Public Serologic Epitopes," J. Immunol. (1989) 143(1):329-333 (0022-1767/89).

BZ

Gruen, J.R., et al., "Physical and Genetic Mapping of the Telomeric Major Histocompatibility Complex Region in Man and Relevance to the Primary Hemochromatosis Gene (HFE)," Genomics (1992) 14:232-240 (0378-7543/92).

CA

Halliday, J.W., "Hemochromatosis and Iron Needs," Nutr. Rev. (1998) 56(2):S30-S37 (Queensland Institute of Medical Research).

CB

Harlow, E., et al., "Antibodies: A Laboratory Manual," Cold Spring Harbor Laboratory (1988) Chapter 5 pp. 75-81 (ISBN 0-87969-314-2).

CC

Hashimoto, K., et al., "Identification of a Mouse Homolog for the Human Hereditary Haemochromatosis Candidate Gene," Biochem. Biophys. Res. Comm. (1997) 230:35-39 (0006-291X/97).

CD

Jakobovits, A., et al., "Production of Antigen-Specific Human Antibodies from Mice Engineered with Human Heavy and Light Chain YACs<sup>a</sup>," Ann. N.Y. Acad. Sci. (1995) 764:525-535 (Cell Genesys, Inc.).

CE

Jazwinska, E.C., et al., "Where Does the Gene for Hemochromatosis Lie in Relation to HLA-A?," Hepatology (1994) 19:1050-1051 (Queensland Institute of Medical Research).

CF

Jazwinska, E.C., et al., "Hemochromatosis and "HLA-H": Definite!," Hepatology (1997) 25(2):495-496 (Queensland Institute of Medical Research).

CG

Jouet, M.M.H., et al., "Isolation of YAC Clones Containing Class I HLA Genes Which Map in the Vicinity of the Hereditary Haemochromatosis Gene," J. Med. Genet. (1991) 28(8):572 (St. Mary's Hospital, Manchester).

EXAMINER

DATE CONSIDERED

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

# LIST OF REFERENCES CITED BY APPLICANT

(Use several sheets if necessary)

ATTY. DOCKET NO.

8907-057-999

APPLICATION NO.

08/852,495

APPLICANT

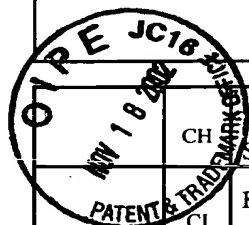
RUDDY et al.

FILING DATE

May 7, 1997

GROUP

1644



CH	Koller, B.H., et al., "Normal Development of Mice Deficient in $\beta_2M$ , MHC Class I Proteins, and CD8 <sup>+</sup> T Cells," Science (1990) 248:1227-1230 (National Institutes of Health).
CI	Kramer, M.F., et al., "The Polymerase Chain Reaction," Current Protocols in Molecular Biology (1993) Chapter 15 pp. 15.0.1-15.1.14 (ISBN 0-471-30661-4).
CJ	Lemarchand, P., et al., "Adenovirus-Mediated Transfer of a Recombinant Human $\alpha_1$ -Antitrypsin cDNA to Human Endothelial Cells," Proc. Natl. Acad. Sci. USA (1992) 89:6482-6486 (National Institutes of Health).
CK	Lin, A.Y., et al., "Expression of T Cell Antigen Receptor Heterodimers in a Lipid-Linked Form," Science (1990) 249:677-679 (Stanford Univ. School of Medicine).
CL	Lipinski, M., et al., "Idiopathic Hemochromatosis: Linkage with HLA," Tissue Antigens (1978) 11:471-474 (Hopital Saint-Louis, Paris).
CM	Miyazaki, J.I., et al., "Intracellular Transport Blockade Caused by Disruption of the Disulfide Bridge in the Third External Domain of Major Histocompatibility Complex Class I Antigen," Proc. Natl. Acad. Sci. USA (1986) 83:757-761 (National Institutes of Health).
CN	Morgan, J.G., et al., "The Selective Isolation of Novel cDNAs Encoded by the Regions Surrounding the Human Interleukin 4 and 5 Genes," Nucl. Acids Res. (1992) 20(19):5173-5179 (National Center for Human Genome Research).
CO	Mulford, C.A., et al., "Endocytosis of the Transferrin Receptor is Altered During Differentiation of Murine Erythroleukemic Cells," J. Biol. Chem. (1988) 263(11):5455-5461 (National Institutes of Health).
CP	Murray, J.C., et al., "A Comprehensive Human Linkage Map with Centimorgan Density," Science (1994) 265:2049-2054 (Univ. of Iowa).
CQ	Nickerson, D.A., et al., "Automated DNA Diagnostics Using an ELISA-Based Oligonucleotide Ligation Assay," Proc. Natl. Acad. Sci. USA (1990) 87:8923-8927 (Whittier Foundation).
CR	Nickerson, D.A., et al., "Genotyping by Ligation Assays," Current Protocols in Human Genetics (1994) Chapter 2.6 pp. 2.6.1-2.6.4 (ISBN 0-471-03420-7).
CS	Olynyk, J.K., et al., "Hepatic Iron Concentration as a Predictor of Response to Interferon Alfa Therapy in Chronic Hepatitis C," Gastroenterology (1995) 108:1104-1109 (0016-5085/95).
CT	Orphanos, V., et al., "Thirteen Dinucleotide Repeat Polymorphisms on Chromosome 6," Hum. Mol. Genet. (1993) 2(12):2196 (Cancer Genetics).
CU	Patterson, M., et al., "Molecular Characterization of Cell Cycle Gene CDC7 From Saccharomyces Cerevisiae," Mol. Cell Biol. (1986) 6(5):1590-1598 (0270-7306/86).
CV	Raha-Chowdhury, R., et al., "Allelic Associations and Homozygosity at Loci from HLA-B to D6S299 in Genetic Haemochromatosis," J. Med. Genet. (1995) 32:446-452 (Univ. of Wales College of Medicine).
CW	Roth, M.P., et al., "The Human Myelin Oligodendrocyte Glycoprotein (MOG) Gene: Complete Nucleotide Sequence and Structural Characterization," (1995) Genomics 28:241-250 (0888-7543/95).

EXAMINER

DATE CONSIDERED

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

TECH CENTER 1600/2900

NOV 25 2002

# LIST OF REFERENCES CITED BY APPLICANT

(Use several sheets if necessary)

ATTY. DOCKET NO.

8907-057-999

APPLICATION NO.

08/852,495

APPLICANT

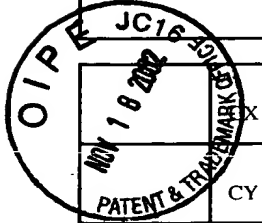
RUDDY et al.

FILING DATE

May 7, 1997

GROUP

1644



- |    |   |
|----|---|
|    | Rothenberg, B.E., et al., "The Molecular Mechanisms of Iron Overload: An Animal Model for Hemochromatosis," FASEB J. (1994) 8. Abstract No. 5217, p. A900 (Univ. of California).  |
| CY | Salter, R.D., "Intracellular Transport of Class I HLA Molecules is Affected by Polymorphic Residues in the Binding Groove," Immunogenetics (1994) 39:266-271 (American Cancer Society).   |
| CZ | Schild, H., et al., "The Nature of Major Histocompatibility Complex Recognition by $\gamma\delta$ T Cells," Cell (1994) 76:29-37 (German Cancer Research Center).   |
| DA | Sevier, E.D., "Monoclonal Antibodies in Clinical Immunology," Clin. Chem. (1981) 27(11):1797-1806 (Hybritech, Inc.).  |
| DB | Sood, A. K., et al., "Isolation and Partial Nucleotide Sequence of a cDNA Clone for Human Histocompatibility Antigen HLA-B by Use of an Oligodeoxynucleotide Primer," Proc. Natl. Acad. Sci. USA (1981) 78(1):616-620 (National Institutes of Health).                        |
| DC | Summers, K.M., et al., "Fine Mapping of a Human Chromosome 6 Ferritin Heavy Chain Pseudogene: Relevance to Haemochromatosis," Hum. Genet. (1991) 88:175-178 (Queensland Institute of Medical Research).   |
| DD | Totaro, A., et al., "New Polymorphisms and Markers in the HLA Class I Region: Relevance to Hereditary Hemochromatosis (HFE)," Hum. Genet. (1995) 95:429-434 (Italian Ministry of Health).   |
| DE | Totaro, A., et al., "Hereditary Hemochromatosis: Generation of a Transcription Map Within a Refined and Extended Map of the HLA Class I Region," Genomics (1996) 31:319-326 (0888-7543/96).   |
| DF | Weber, J.L., et al., "Dinucleotide Repeat Polymorphism at the D6S105 Locus," Nucl. Acids Res. (1991) 19(4):968 (National Institutes of Health).   |
| DG | Wettstein, D.A., et al., "Expression of a Class II Major Histocompatibility Complex (MHC) Heterodimer in a Lipid-Linked Form With Enhanced Peptide/Soluble MHC Complex Formation at Low pH," J. Exp. Med. (1991) 174:219-228 (0022-1007/91).                                  |
| DH | Zijlstra, M., et al., " $\beta$ 2-Microglobulin Deficient Mice Lack CD4 <sup>+</sup> 8 <sup>+</sup> Cytolytic T Cells," Nature (1990) 344:742-746 (Cancer Research Institute).  |
| DI | Zinkernagel, R.M., et al., "MHC-Restricted Cytotoxic T Cells: Studies on the Biological Role of Polymorphic Major Transplantation Antigens Determining T-Cell Restriction-Specificity, Function, and Responsiveness," Adv. In Immunol. (1979) 27:51-177 (ISBN 0-12-022427-5). |

EXAMINER

DATE CONSIDERED

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.